

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
Policies and Rules Governing)	
Retirement of Copper Loops By)	
Incumbent Local Exchange Carriers)	
)	
Petition of XO Communications, LLC,)	RM- 11358
Covad Communications Group, Inc.,)	
NuVox Communications and Eschelon)	
Telecom, Inc., for a Rulemaking to)	
Amend Certain Part 51 Rules Applicable)	
to Incumbent LEC Retirement of Copper)	
Loops and Copper Subloops)	

COMMENTS OF CORNING, INC.

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EXECUTIVE SUMMARY

Tremendous strides have been made in the deployment of fiber-to-the-home (“FTTH”)¹ and other deep fiber networks since the Commission’s 2003 Triennial Review Order (“TRO”) lifted unbundling requirements on ILEC fiber loops. The key to that decision’s positive impact was the clarification that ILECs could enjoy both the profits and cost savings they might obtain from an investment in next generation technology. With that knowledge, ILECs could – for the first time – estimate the true value of fiber loop investments.

An integral part of the Commission’s decision pertained to the retirement of ILECs’ legacy copper networks. Clearly, the cost of maintaining two networks is greater than that of maintaining one, and it was important for the Commission to provide a framework under which copper networks could be deactivated as the FTTH transition occurred. The Commission created that framework, and Corning believes the certainty it provides is crucial to the continued success of the industry’s FTTH investments and deployments.

The TRO decision regarding FTTH was expressly intended to create a race to build next generation networks.² The Commission did not view the legacy copper network as a potential next generation network.

¹ In the Triennial Review proceeding, Corning provided substantial empirical analysis of the impact of unbundling obligations on ILEC FTTH. The Commission subsequently extended FTTH unbundling relief to other deep-fiber architectures. For consistency with our earlier comments on this matter, our language herein uses the term “FTTH.” Use of this term is not intended to exclude other deep-fiber architectures to which the Commission’s relief applies.

² TRO at ¶ 272.

The Commission, in a well-reasoned decision, has already rejected the exact arguments that Petitioners now press. Nonetheless, without offering any basis upon which the Commission could depart from its prior conclusion, the Petitioners have asked the Commission to change its copper retirement rules on the basis of unproven assertions and speculative harms. Indeed, it is unclear how the Petitioners could have suffered harm because, to date, ILEC FTTH deployment has not resulted in any significant retirement of copper assets.

Moreover, as other CLECs around the country begin to deploy FTTH networks of their own, this group of Petitioners fails to explain why public policy is better served by imposing new burdens on ILEC FTTH deployers than by CLECs' own investment in next generation networks. This is not a small point. The Commission has an obligation under Section 706 of the Telecommunications Act of 1996 to encourage the deployment of advanced telecommunications capabilities. As both Congress and the Commission have recognized, widespread roll-out of high-speed data networks would have far-reaching, positive social and economic effects in terms of productivity, education, and health.

Corning believes the best way for the Commission to encourage even more wide-spread deployment of high-speed networks, and thus advance the public interest, is for the Commission to maintain its position regarding FTTH.

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COMMENTS OF CORNING, INC.

I. INTRODUCTION.

Corning, Inc. (“Corning”) hereby submits the following comments in response to the above-referenced petitions.³ Corning supplies leading edge technologies for a number of sectors of the economy, including the telecommunications, display, life sciences, environmental, and semi-conductor industries, and has a history of innovation in each of these areas. In the

³ *Policies and Rules Governing Retirement of Copper Loops By Incumbent Local Exchange Carriers*, Petition for Rulemaking and Clarification of BridgeCom International, Inc., *et al.*, RM-11358 (filed Jan. 18, 2007) (the “BridgeCom *et al.* Petition”); *XO Communications, LLC, Covad Communications Group, Inc., NuVox Communications and Eschelon Telecom, Inc. for a Rulemaking to Amend Certain Part 51 Rules Applicable Incumbent LEC Retirement of Copper Loops and Copper Subloops*, Petition for Rulemaking of XO Communications, LLC, *et al.*, RM-11358 (filed Jan. 18, 2007) (the “XO *et al.* Petition”) (collectively, the “Petitions” and the “Petitioners”).

telecommunications industry, Corning is the inventor of low-loss optical fiber and is the largest U.S. producer of optical fiber, optical cable, and passive telecommunications components. As a result, Corning has substantial experience in the provisioning, implementation, and economics of fiber optic telecommunications networks.

For the reasons set forth below, Corning urges the Commission to reject the Petitioners' requests to change the Commission's well-reasoned and successful decision regarding ILEC FTTH in the 2003 Triennial Review Order.⁴

II. COMMENTS.

A. FTTH Enables Providers To Offer Advanced Telecommunications Capabilities.

For a number of years, Corning has been a leading supplier of FTTH equipment that can be deployed for prices comparable to legacy copper plant. Importantly, FTTH offers a range of capabilities far beyond those of standard copper. The transmission capacity of fiber optic networks is so vast, compared to traditional telephony networks, that carriers using the technology can offer traditional voice service, full motion video, and unprecedented symmetrical data transfer rates simultaneously. As a result, unlike many other technologies, FTTH fully meets the definition of "advanced telecommunications capability" contained in Section 706 of the 1996 Telecommunications Act.

⁴ *In the Matter of Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, Report and Order and Order on Remand and Further Notice of Proposed Rulemaking, 18 FCC Rcd 16978 (2003) (the "TRO").

B. The Commission's Existing Retirement Rules Advance the Public Interest and Promote FTTH Deployment.

In 2002 and 2003, the Commission conducted a lengthy and thorough review of its then-existing unbundling obligations. In that proceeding, Corning proposed lifting the unbundling obligations on new ILEC FTTH deployments and provided an empirical analysis demonstrating that lifting such obligations would, for the first time, spark significant FTTH deployment in the United States.⁵ We were gratified when the Commission agreed with our analysis and in fact lifted the unbundling obligations on new ILEC FTTH.⁶

The Commission's TRO decision has been one of the most successful telecommunications policy actions in many years. The year following the TRO decision, Verizon Communications began its first foray into FTTH with a deployment in Keller, Texas. AT&T (then SBC) announced it would deploy FTTH in "greenfield" scenarios. Because of the validation of FTTH by these two large carriers, FTTH deployment also accelerated among smaller telephone companies, municipalities, new home developers, and other telecommunications providers. As of September 2003 – the month after the TRO's release – only 189,000 homes in the United States were passed directly by optical fiber, and the RBOCs accounted for only 400 of those. By September 2006, however, the number of FTTH homes passed grew to over 6 million, with over 5 million of those served by Verizon.⁷ Verizon has

⁵ See *Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, Comments of Corning, Inc. at 10-14 (April 5, 2002) ("Corning TRO Comments").

⁶ See, e.g., TRO at ¶ 278 (citing Corning TRO Comments).

⁷ RVA, LLC Market Research and Consulting, *FTTH/FTTP Update* (Oct. 2006) ("*FTTH/FTTP Update*") (attached hereto).

publicly announced plans to pass 18 million homes with FTTH by 2010 at an estimated cost of \$23 million. Through its “FiOS” FTTH network, Verizon offers consumers data speeds of up to 50 megabits per second (“Mbps”).

Thus, for the first time, a significant and growing number of Americans have access to an all-optical network unshackled by the physical limitations of the legacy copper network designed over one hundred years ago to carry analog voice traffic. In our view, when Congress asked the Commission to encourage the deployment of “advanced telecommunications capabilit[ies],” Congress envisioned the type of advanced and robust FTTH network that carriers are now rapidly deploying.

We strongly believe that ILEC FTTH deployment would have been severely inhibited but for the Commission’s decision to lift the regulatory barriers on ILEC FTTH. The key to that decision’s positive impact was the clarification that ILECs could enjoy both the profits and cost savings they might obtain from a FTTH investment. With that knowledge, ILECs could for the first time estimate the true value of FTTH investments.

As for the cost of FTTH deployment, an important aspect of this clarification pertained to the retirement of ILEC legacy copper networks. It is beyond doubt that the cost of maintaining two networks is greater than that of maintaining one; and we believe it was very important for the Commission to provide a framework under which copper networks could be deactivated as the FTTH transition occurred. The Commission did this with substantial thought and analysis, ultimately requiring ILECs deploying FTTH to either maintain an existing copper loop over which competitors could continue serving voice customers or provide the competitor with a 64

kbps transmission path over its FTTH loop.⁸ Furthermore, ILECs were not required to incur relief and rehabilitation costs for copper loops unless a competitor requested unbundled access to it, and such loop was placed back into service. Moreover, the Commission applied its Section 251(c)(5) network modification disclosure requirements to the retirement of copper loops and subloops⁹ and also allowed parties to file objections to an ILEC's notice of loop retirement.¹⁰

We believe this framework provides a fair compromise between the need to encourage next generation networks and the need to allow continued competitive LEC service to narrowband customers. We also believe that the certainty provided by this framework is crucial to the FTTH investment decision.

1. The TRO Decision Regarding FTTH Was Expressly Intended To Create a Race to Build Next Generation Networks.

In the TRO, the Commission made plain that one of its goals was the creation of competing next generation networks. Specifically, the Commission noted that because ILEC FTTH would not be available on an unbundled basis, "competitive LECs will need to continue to seek innovative network access options to serve end users to fully compete against incumbent LECs in the mass market. The end result is that consumers will benefit from this race to build next generation networks and the increased competition in the delivery of broadband services."¹¹ The Commission plainly did not view the legacy copper network as a potential next generation

⁸ See TRO at ¶ 277.

⁹ *Id.* at ¶ 281.

¹⁰ *Id.* at ¶ 282.

¹¹ *Id.* at ¶ 272.

network; the entire discussion around the copper network pertained to ensuring the continuation of narrowband competition.

The Petitioners attempt to portray copper as a possible next generation network, pointing out that “new technical standards permit copper to support services up to 100 Mbps.”¹² Though it may be possible for copper to transmit information at high speeds, the question is, at what cost and over what distance? We are unaware of copper technologies delivering 100 Mbps over distances of more than a few hundred feet, and then only with significant investment in very powerful equipment capable of pushing electrons through the high resistance of the copper medium. To achieve those speeds, Petitioners would have to deploy their own fiber-to-the-curb (“FTTC”) network to attach to the last few hundred feet of legacy copper. If that is indeed Petitioners’ intention, we would encourage them to spell it out explicitly in their Commission filings. But, such a plan would be economically suspect, in our view, because – in the case of a new network – it would make little sense to stop at the curb rather than to deploy all the way to the home. Although FTTC and other deep-fiber architectures may arguably make sense for a provider with an existing copper network, the cost benefit for a provider building new facilities is questionable.

Accordingly, we do not believe that requiring ILECs to maintain legacy copper networks for CLEC use will result in “the race to build next generation networks” which the Commission had in mind in the TRO.

¹² BridgeCom *et al.* Petition at 2.

2. As the Commission Recognized In the TRO, CLECs Are Now Building Their Own FTTH Networks, and Adopting Petitioners' Proposals Would Discourage This Type of Investment.

Petitioners' focus on copper represents more of a problem than a solution. Instead of advancing the public interest by investing in new communications technologies, they focus on maintaining a communications medium developed for narrowband purposes which is inferior to modern media. From a policy and technology perspective, we believe the Commission should continue to advance policies that encourage and facilitate CLEC investment in FTTH. Adopting Petitioners' proposals would have the effect of discouraging this type of investment by encouraging CLECs to invest in copper. As the Commission has previously found, a number of CLECs are building their own FTTH networks.¹³ As of October 2006, facilities-based CLECs served roughly 16% of the one million FTTH subscribers in the U.S. These include CLECs working with new home developers and ILEC subsidiaries created to compete in new territories.¹⁴ Clearly, CLECs can make this investment. Indeed, in many instances, it will be less expensive for a CLEC to invest in FTTH than for an ILEC to do so because of ILEC costs associated with transitioning away from legacy copper. That is why we think it would be counterproductive to now require ILECs deploying FTTH to maintain their old copper networks even longer than their business plans require. The longer a communications provider is tied to an old network because of regulations, the fewer incentives that provider has to invest in a new network.

¹³ See TRO at ¶ 279 (“[C]ompetitive LECs have demonstrated that that they can self-deploy FTTH loops and are doing so at this time.”).

¹⁴ See, e.g., *FTTH/FTTP Update*.

C. Contrary to Petitioners' Assertions, ILEC Copper Loop Retirement Promotes FTTH Deployment.

In their filings, Petitioners allege that allowing ILEC FTTH providers to retire copper facilities does not promote the deployment of fiber loop networks. This statement cannot be squared with any faithful reading of the TRO decision or basic principles of economics. In support of this erroneous assertion, they note the truism that embedded copper facilities do not physically preclude construction of new fiber loops. The Petitioners then note that ILECs do not need to retire copper facilities to invest in fiber facilities.¹⁵ Unfortunately, these arguments miss the point. For a private-sector entity, the decision of whether to invest in new facilities ultimately comes down to one factor: return on investment. Operating two networks is more expensive than operating one of those networks and will affect return on investment. Although a company may decide that there are benefits to operating two networks for some period of time, over the long term, having the option of retiring the copper facilities can have an important positive effect on investment returns, and thus on the decision to invest in fiber in the first place.

D. Petitioners' Arguments Regarding Homeland Security Do Not Withstand Scrutiny.

Petitioners also argue that the Commission's existing retirement policy undermines the FCC's goal of ensuring communications during natural disasters and promoting homeland security.¹⁶ As an example, Petitioners point to a Hurricane Katrina scenario, arguing that a third wire to the home would help provide an alternative to a washed-away FTTH network. They also

¹⁵ XO *et al.* Petition at 18-19.

¹⁶ *Id.* at 15.

cite Federal Reserve Board Vice Chairman Roger Ferguson's admonition to financial institutions to protect against terrorist attack by seeking greater redundancy of telecommunications services through alternative technologies.¹⁷ There is no basis to support the claim that a flood of massive proportions or a terrorist bomb will leave a copper network operating while wiping out a FTTH network deployed in parallel. In fact, if homeland security is at issue, we suggest that the proper course is to encourage retirement of copper as quickly as possible because fiber is generally more durable and secure.

E. In a Well-Reasoned Opinion, the Commission Squarely Rejected Petitioners' Arguments and Their Petitions Do Not Provide Any Basis Upon Which the Commission Could Reverse Its Prior Decision.

In the TRO, the Commission squarely addressed and rejected Petitioners' claims for relief.¹⁸ Based on a thorough examination of the record evidence, the Commission held that it was "not necessary" to adopt the types of rules that Petitioners' now urge. And the Petitioners do not, indeed cannot, provide the Commission with any lawful basis for overturning its prior decision.

The Commission rejected these types of proposals because its current retirement rules "adequately safeguard" CLEC interests.¹⁹ Indeed, the Commission made specific pro-CLEC amendments to its retirement rules to prevent ILEC copper loop retirement from adversely

¹⁷ *Id.* at 17.

¹⁸ *See, e.g.*, TRO at ¶ 281 ("Several parties also propose extensive rules that would require affirmative regulatory approval prior to the retirement of any copper loop facilities.").

¹⁹ *See id.* at ¶ 281.

affecting a CLEC's ability to provide services.²⁰ Under the Commission's modified rules, ILECs must provide public notice of network change.²¹ Moreover, parties can file objections to an ILEC's notice of loop retirement, and the Commission will deny the retirement if doing so would deny CLEC access to the loop facilities.²²

In short, the Commission's FTTH decision in the TRO was based on substantial data and empirical analysis. By contrast, Petitioners' assertions do not appear to be supported with any significant evidence of past or future harm to CLECs. Indeed, it is unclear how Petitioners could have suffered harm because, to date, ILEC FTTH deployment has not resulted in any significant retirement of copper assets. Moreover, Petitioners offer no measurable support for the alleged public policy benefits that would flow from their proposals. Rather, Petitioners' filings consist primarily of unsubstantiated assertions.

Where a government policy has proven successful, as with the TRO decision on FTTH, those seeking to change that policy should provide clear evidence of a problem and offer a rational explanation for why the Commission should change course. The Petitioners have not done so. Rather, in the face of a policy change that was designed to encourage FTTH deployment and clear evidence that it has succeeded, they deny the substantial benefits the Commission's policy has wrought.

²⁰ *Id.*

²¹ *Id.*

²² *Id.* at ¶ 282.

III. CONCLUSION.

For the reasons set forth above, the Commission should reject Petitioners' calls to change the Commission's position regarding ILEC FTTH, including the policy allowing the retirement of ILEC copper loops and subloops following the deployment of FTTH.

Respectfully submitted,

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ATTACHMENT



FTTH/FTTP UPDATE

October, 2006

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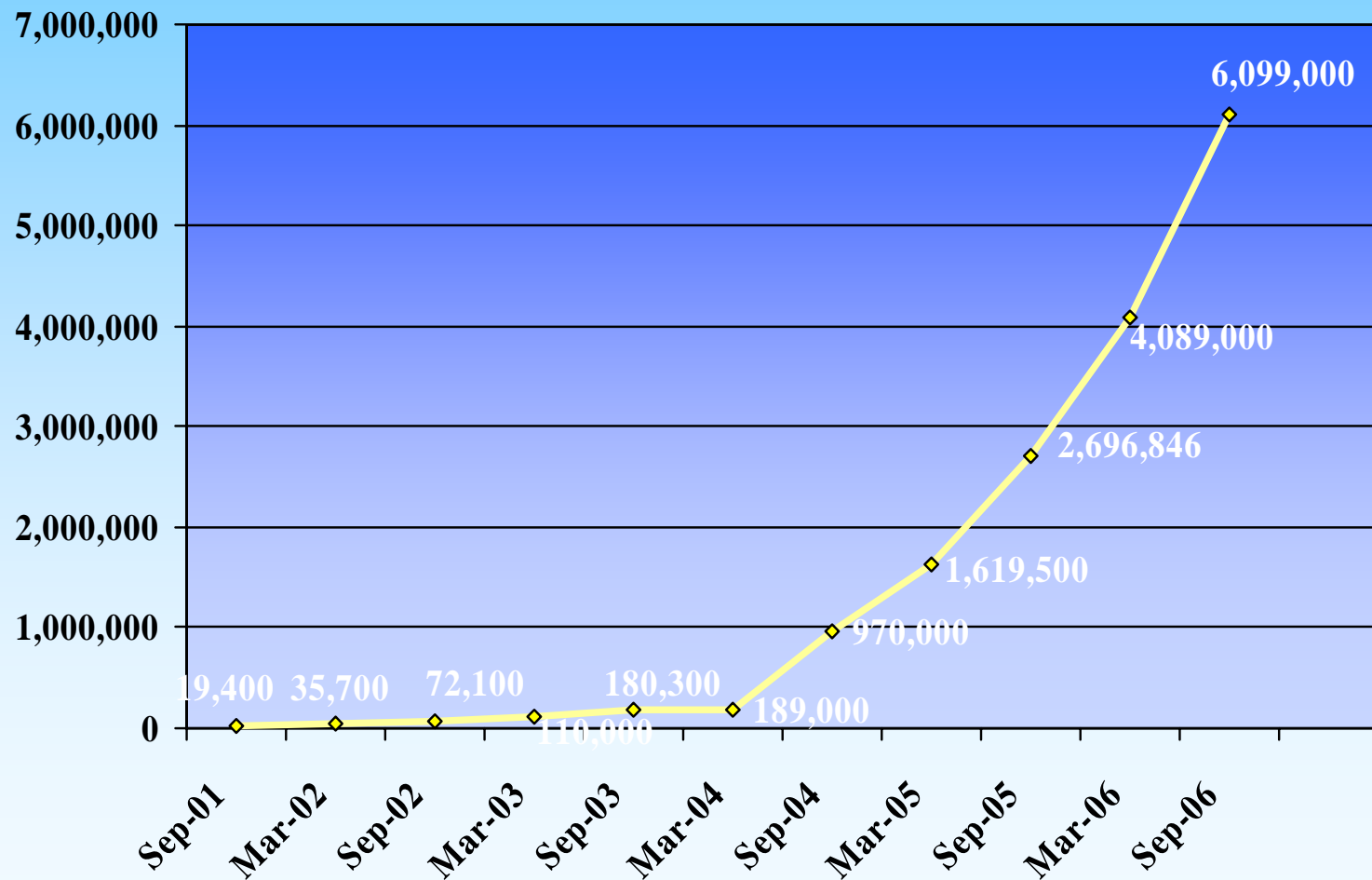
Methodology

- Background research
- Vendor/Expert interviews
- Provider interviews
- Random segment interviews
- Consumer interviews

Is It Growing?

FTTH Homes Passed

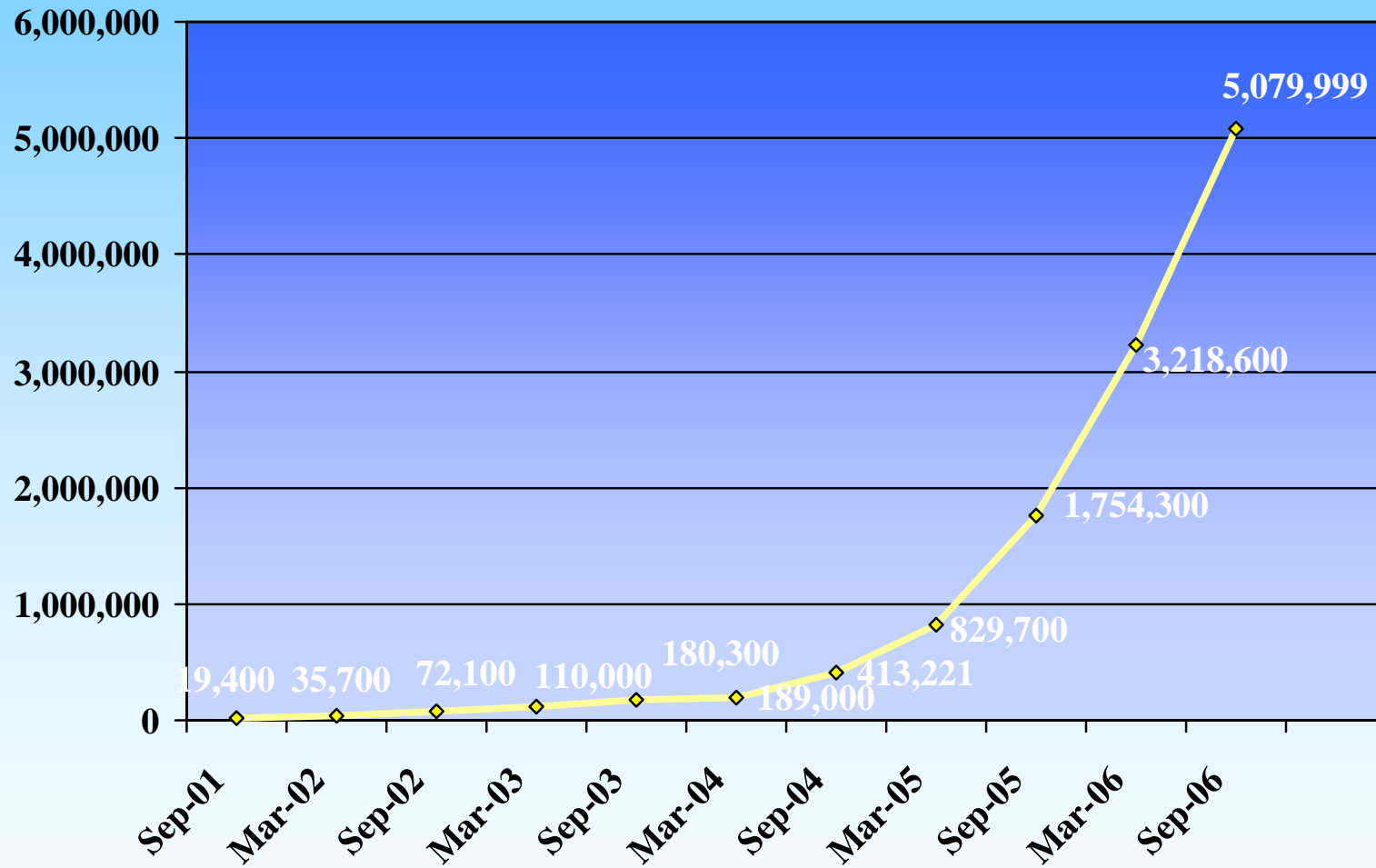
(Cumulative – North America)



Source: RVA Render & Associates, LLC 2006

FTTH Homes Marketed

(Cumulative – North America)

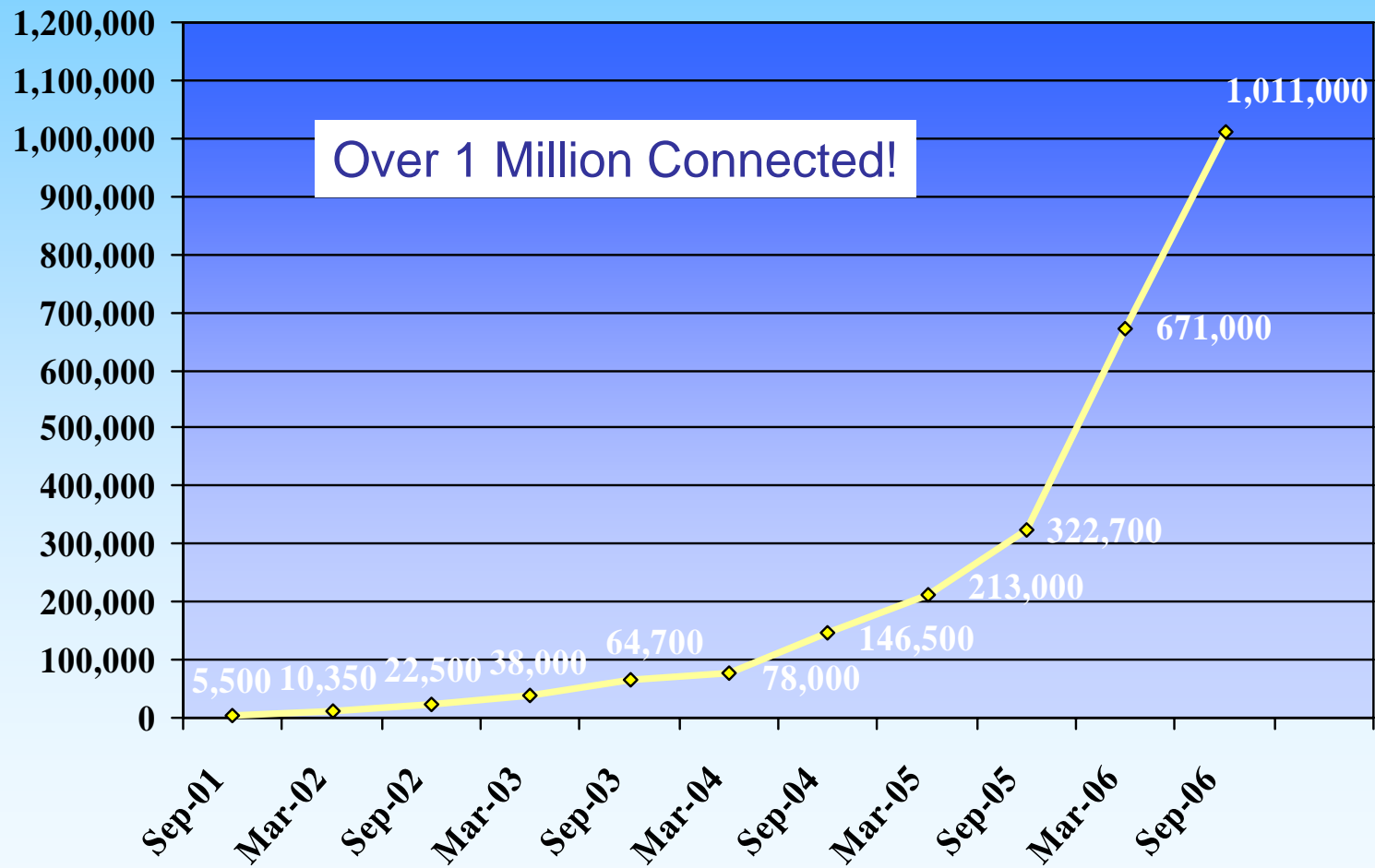


Source: RVA Render & Associates, LLC 2006

And The Big News...

FTTH Homes Connected

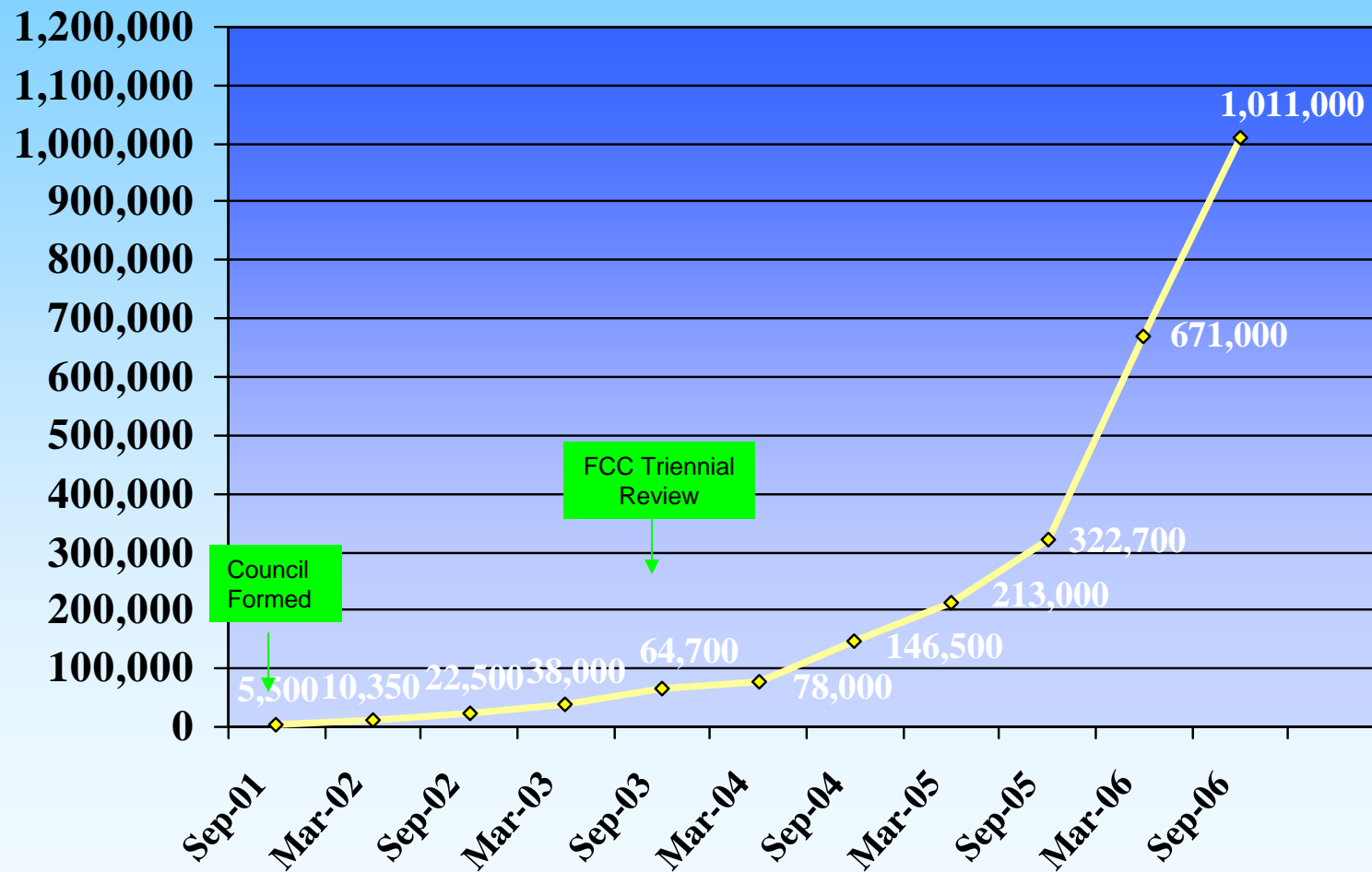
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Source: RVA Render & Associates, LLC 2006

FTTH Homes Connected

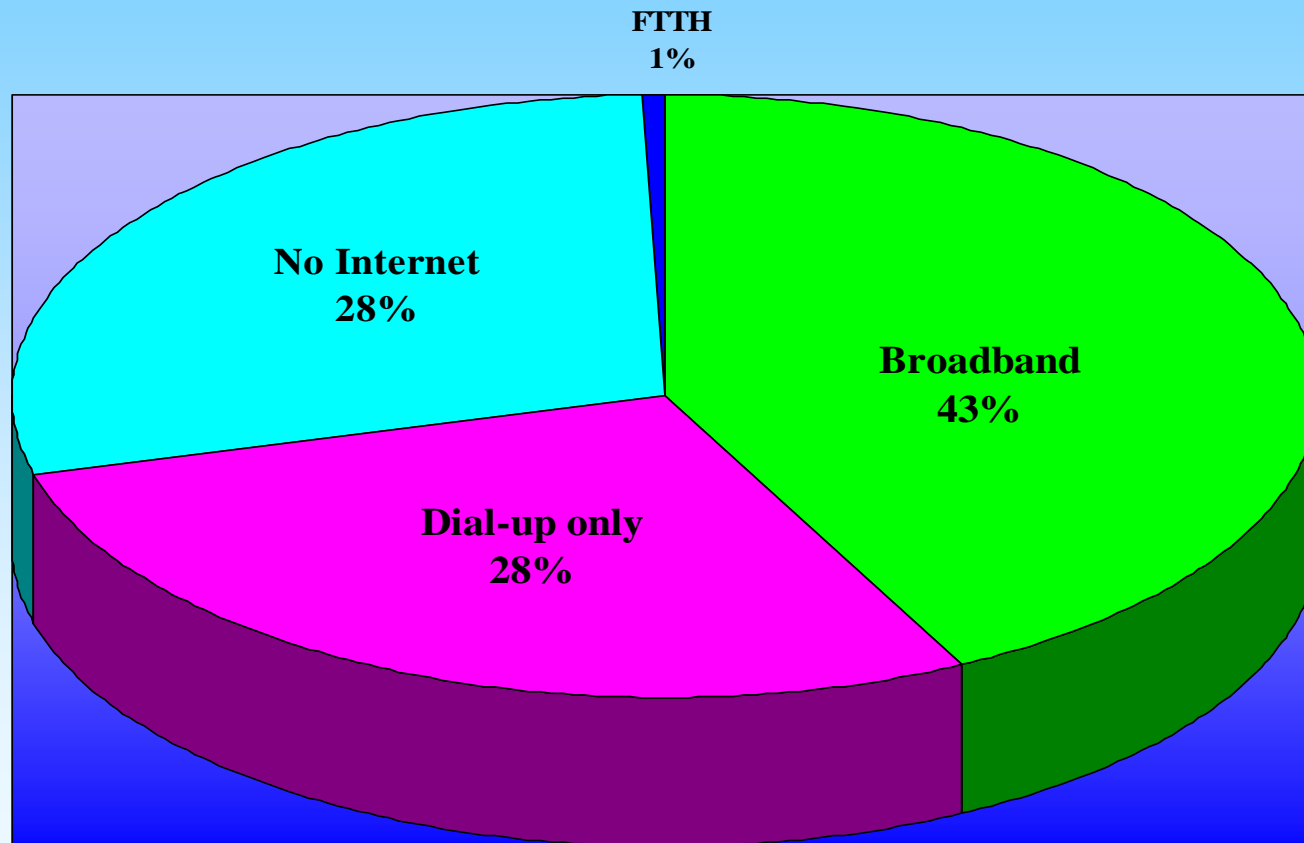
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Source: RVA Render & Associates, LLC 2006

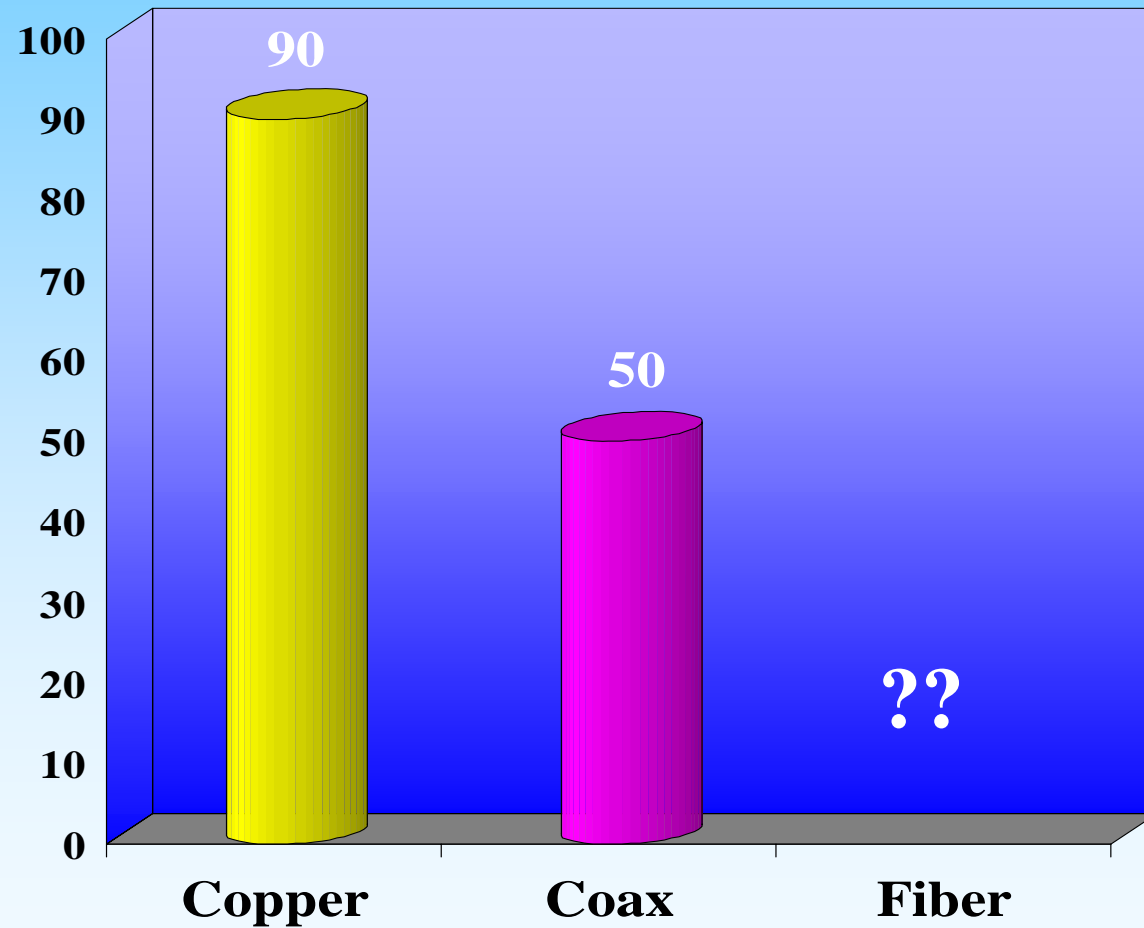
Are We There Yet?

Current Status of Fixed Connectivity

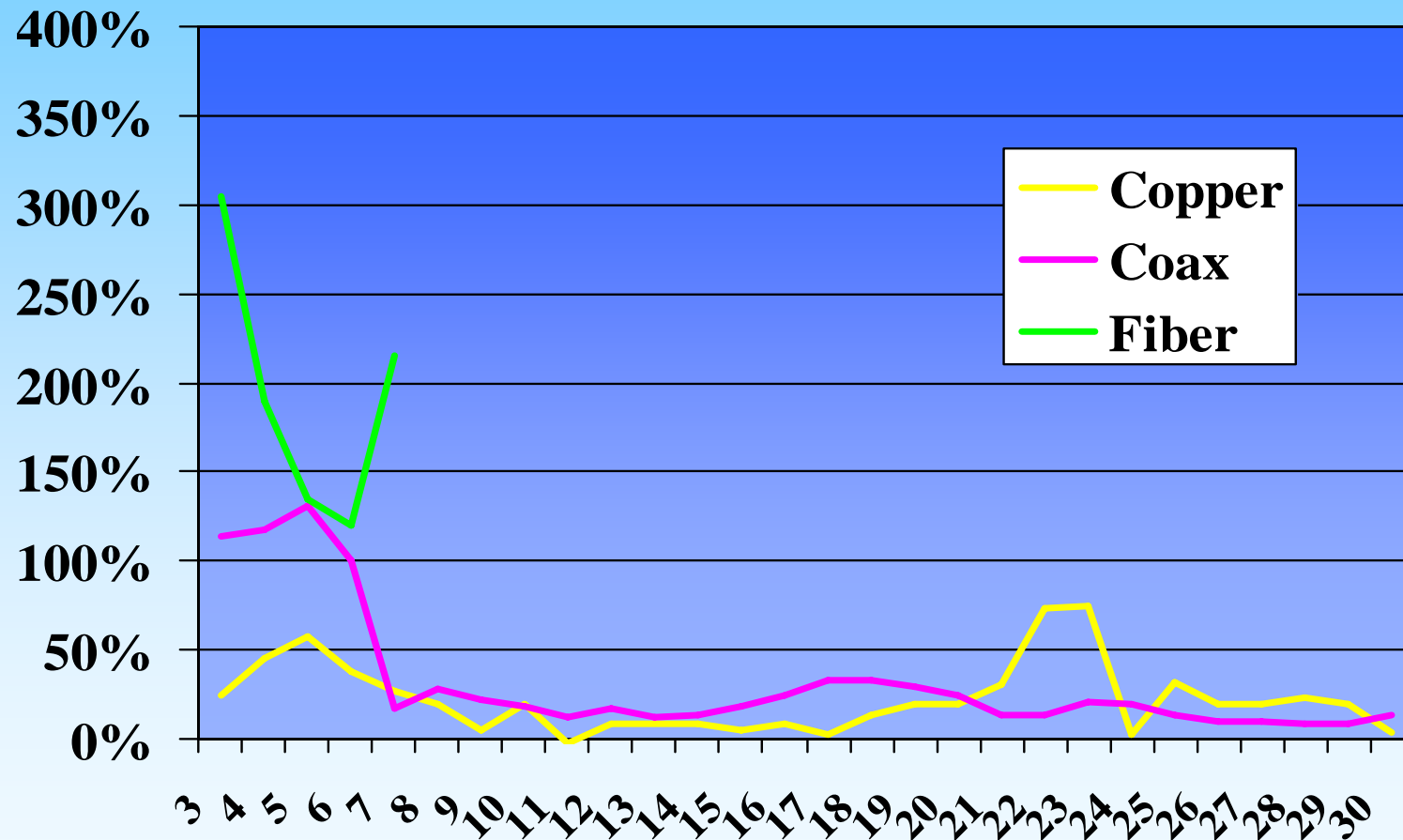


Source: RVA Render & Associates, LLC 2006

Years to Reach 90% of Americans

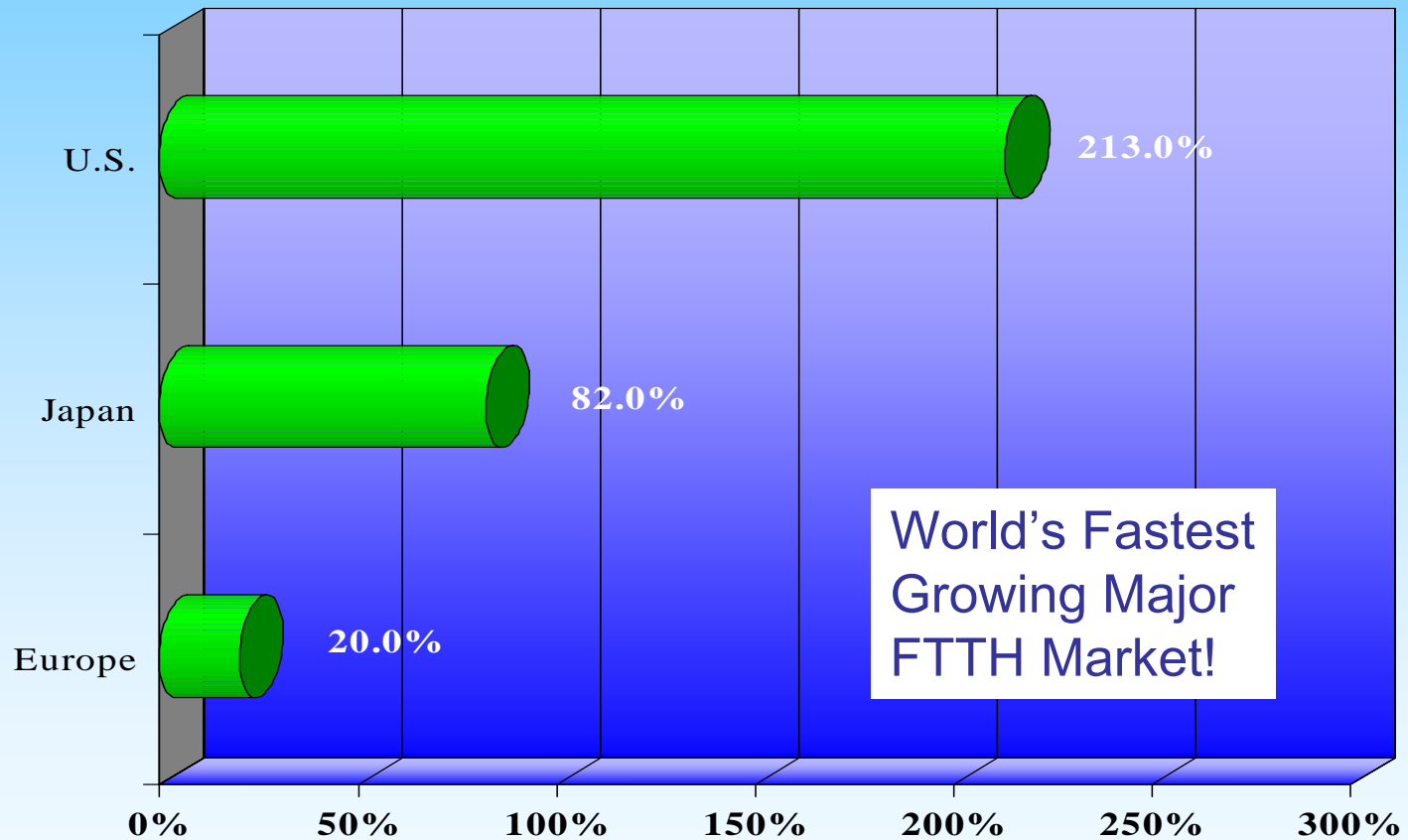


Year-to-Year Growth in Homes Connected



Source: RVA Render & Associates, LLC 2006

Approximate Annual Growth in FTTH Subscribers

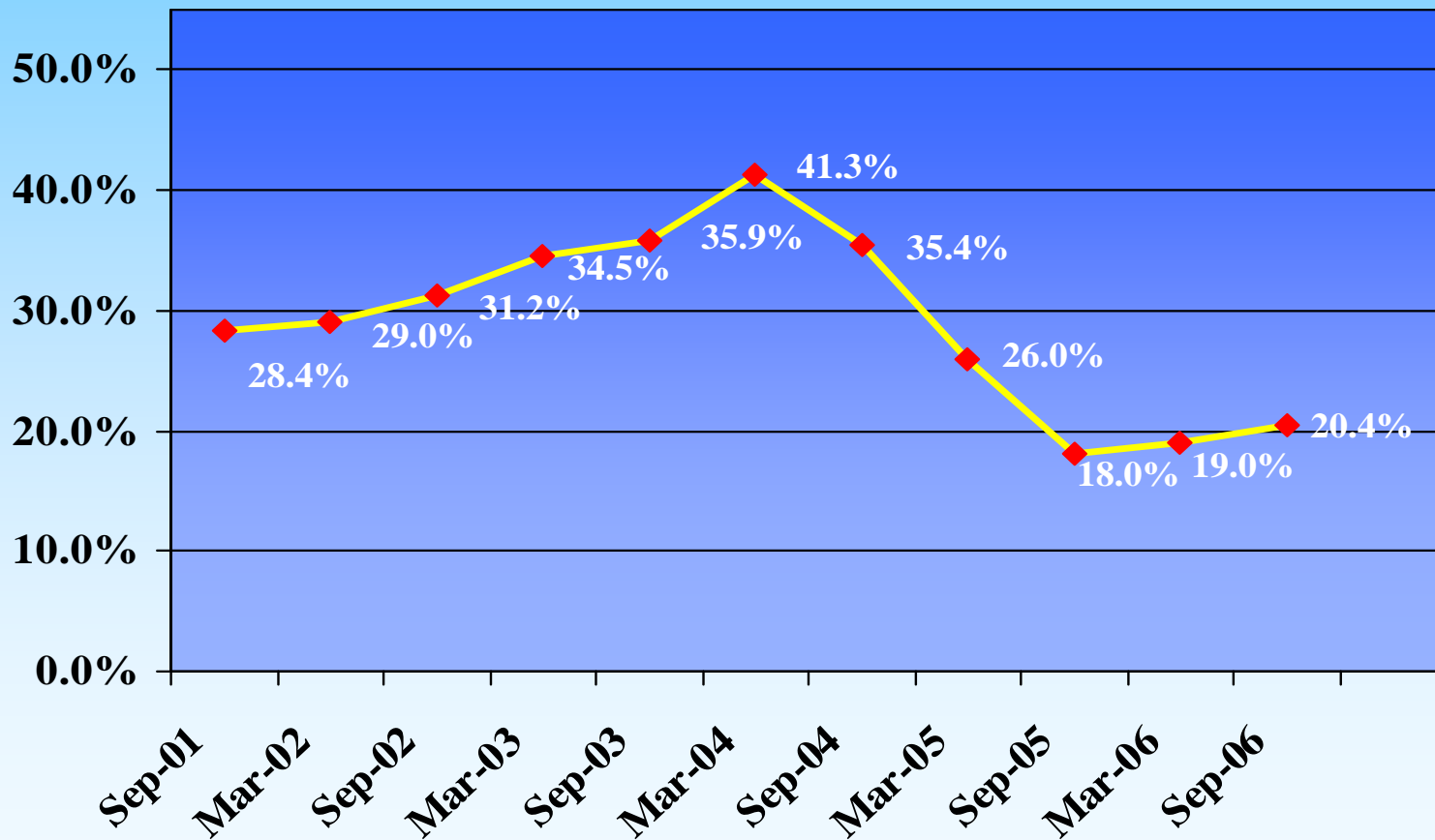


Source: RVA Render & Associates, LLC 2006

What About Take Rates?

Overall Take-Rate for FTTH

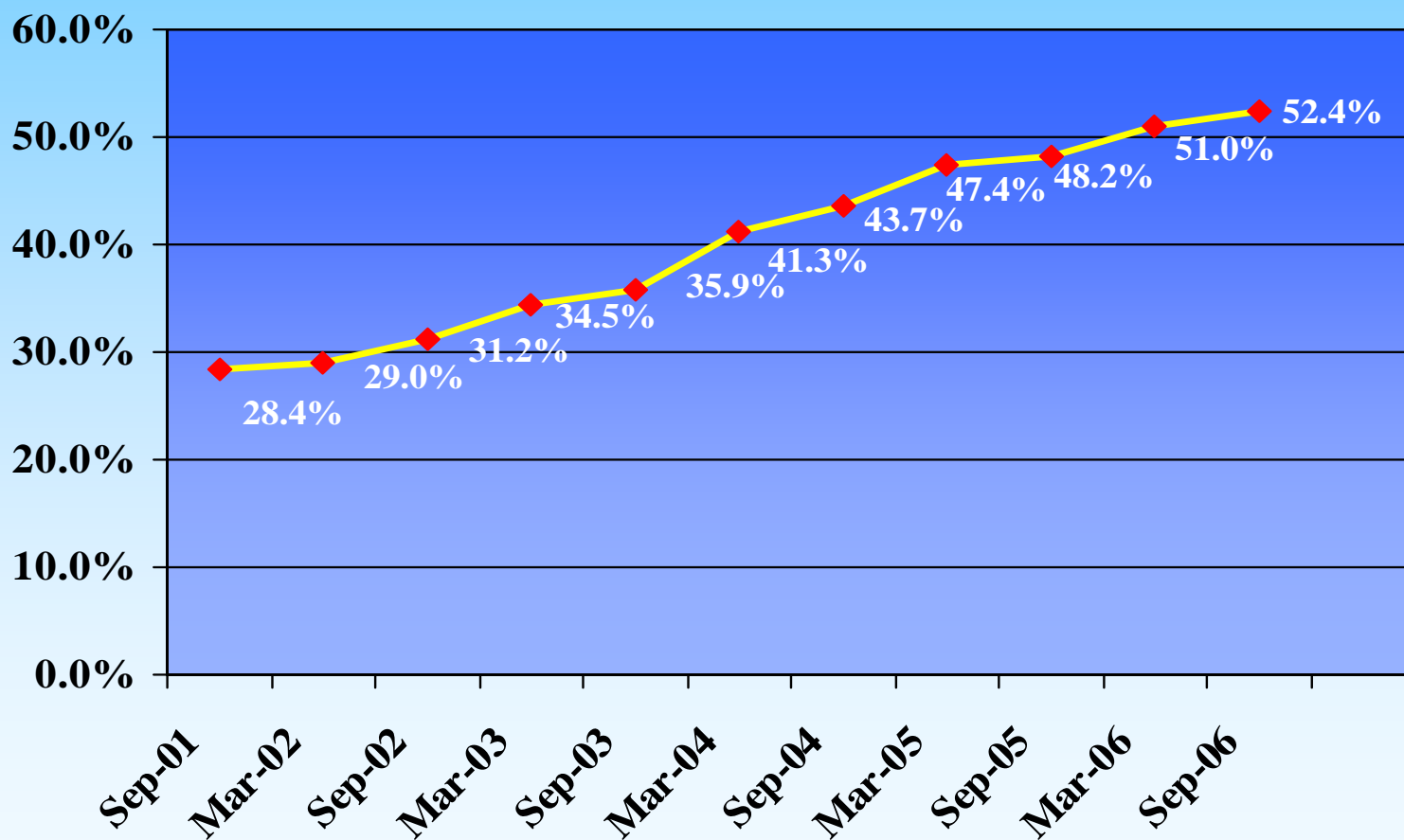
(Cumulative – North America by Year)



Source: RVA Render & Associates, LLC 2006

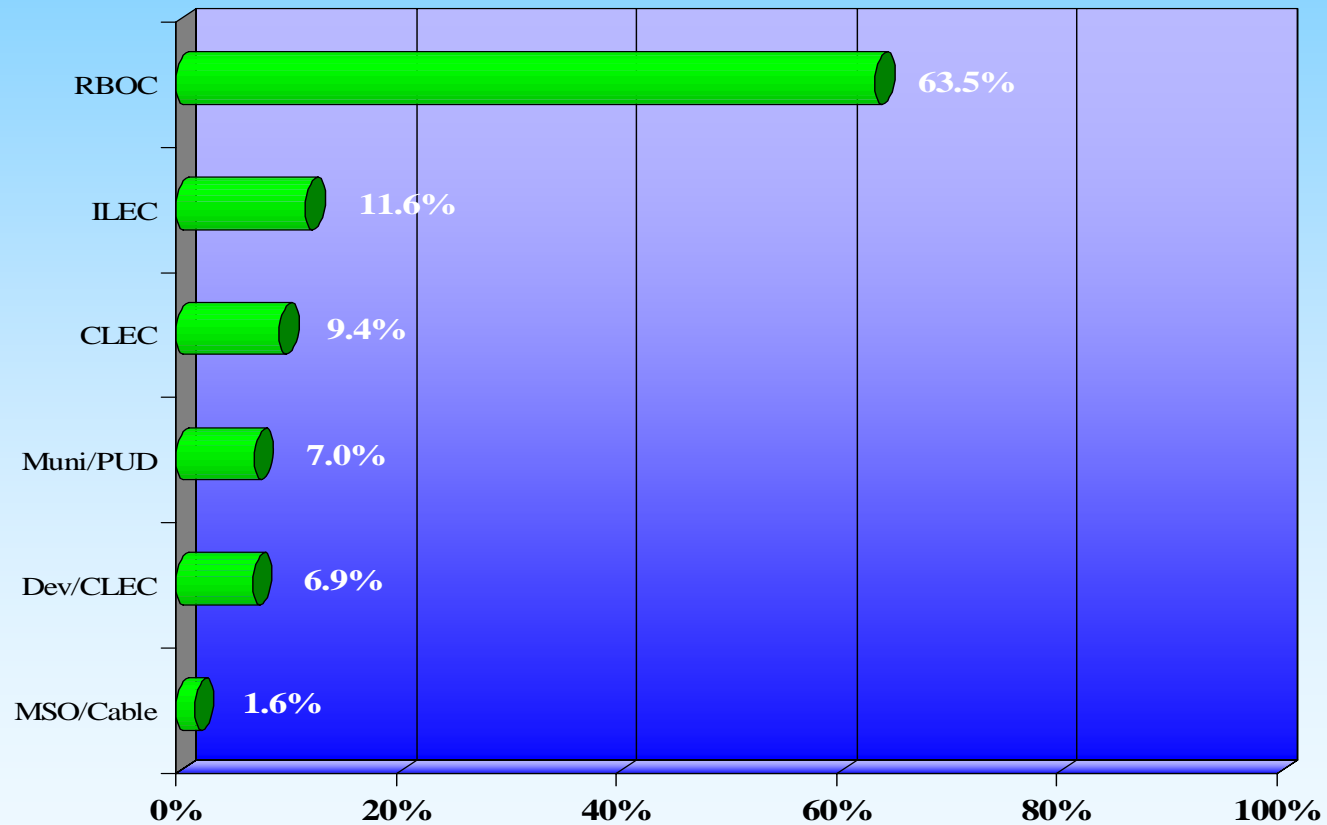
Overall Take-Rate for FTTH Non-RBOC

(Cumulative – North America by Year)



Source: RVA Render & Associates, LLC 2006

FTTH Subscribers By Provider Type



Source: RVA Render & Associates, LLC 2006



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